Patient views on supplementing dietetic interventions and the potential of text messaging in primary care: a focus group study

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Abstract

Background: There is a critical need for effective weight management and long-term condition treatment. In New Zealand, Māori, Pacific, and people living in areas of high deprivation experience obesity, overweight and long-term conditions at a proportionately higher extent compared to the rest of the population. Dietetic counselling within primary care is one way to address these issues and improve health outcomes. Fostering adherence to lifestyle goals in a patient's everyday environment is likely to assist in the treatment and management of obesity and the associated long-term conditions. In order to develop adjunct interventions for between dietetic consultations, that suit those they are intended to serve, patient input should be sought to inform interventions. mHealth (mobile Health) text messaging interventions have the potential to supplement dietetic intervention. Before clinical initiation, the acceptability of the use of text messaging in this setting needs to be explored. To maximise the success of a text messaging intervention it is important to seek patient input to align the development with their wants and needs.

Objective: Explore overweight and obese patients' perceptions of what could enhance dietetic interventions in primary care, and how patients perceive text messaging as an adjunct to dietitian counselling to support them to achieving their health related goals.

Design: The research was based at Te Awakairangi Health Network a primary healthcare organisation in Lower Hutt, Wellington. A qualitative approach was utilised for this study using focus groups for the collection of relevant perspectives and opinions. Following a review of the literature, an interview schedule was developed to guide focus group discussions to address the research objectives. Focus group participants were selected by purposive sampling. Overweight and obese adults

who were Māori, Pacific, or living in an area of high deprivation, who had partaken in an appointment with a dietitian between January 2015 and August 2015, were eligible for inclusion in the study. The focus group audio recordings were transcribed and thematically analysed. Themes were organised into a framework relating to the research objectives.

Results: Twenty-one participants took part in one of five focus groups. Thematic analysis indicated that participants seeing dietitians believed that an increase in social support from family, the dietitian, and from peers going through similar experiences would further help them to achieve their lifestyle related goals. Participants also described that being informed about their health and the use of informational tools given to them by the dietitian had been helpful in making lifestyle changes. Participant responses established that the idea of text messaging between the dietitian and patient in this setting was positively received. Participant preferences for this kind of intervention included a desire for a high level of personalisation of text messages to the individual, as well as for the content of messages to be motivational, informational, and goal related. The idea of being in more frequent contact with their dietitian generated positive responses from participants.

Conclusion: This study elicited perspectives from patients in a dietetic primary care setting about what could improve the achievement of weight management goals in their daily environment. Participants perceived that adjunct interventions in this setting would be helpful to them if they included social support. Text messaging if personalised, as a way to support patients to achieving their goals is acceptable to this population.

Preface

This study was based at the Te Awakairangi Health Network (TeAHN), a Primary Healthcare Organisation (PHO) based in Lower Hutt, Wellington. This PHO services 23 general practices. TeAHN operates a dietetic service that provides a free of charge service for Māori, Pacific and people living in areas of high deprivation. TeAHN gave permission to the primary researcher to obtain access to their patients and database to carry out the research.

Primary supervision was kindly provided by Jan Milne, a community dietitian working at TeAHN. Olivia Edwards and Emma Shields both dietitians working at TeAHN kindly agreed to be advisors to the project. Louise Beckingsale also served as a project advisor. Academic supervision was kindly provided by Professor Winsome Parnell, from the Department of Human Nutrition, University of Otago.

As supervisors and advisors, between them they were involved in designing research objectives, obtaining ethical approval, supervising data collection and analysis, advising on thesis structure and content.

The candidate was responsible for

- Further development of research objectives
- Literature search
- Development of data collection tools and resources
- Recruitment of focus group participants
- Facilitating focus groups and transcribing audio recordings
- Qualitative thematic data analysis
- Thesis preparation

Emma Shields was responsible for field note-taking in the focus groups.

Olivia Edwards and Jan Milne were responsible for independent analysis of two focus group transcripts.

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

BMI	Body Mass Index kg/m^2
EMI	Ecological Momentary Interventions
mHealth	Mobile Health
NZ	New Zealand
PHO	Primary Healthcare Organisation
TeAHN	Te Awakairangi Health Network

1 Introduction

There is a higher prevalence of obesity in Māori (46.5%) and Pacific (66.2%) and those living in areas of high deprivation (42.6%) than other ethnicities in New Zealand (NZ) (for example NZ European obesity prevalence is 29.2%).[1] The NZ health care system aims to reduce health inequalities by providing funded services for the treatment of these issues. Long-term conditions, also known as chronic conditions, are recurring or ongoing conditions that can have a significant impact on a person's life.[2] The prevention and management of obesity and long-term conditions in NZ is mainly provided in Primary Healthcare Organisations (PHOs), by general practitioners, nurses, dietitians, and lifestyle based programs. Weight loss reduces the risk of diabetes and its complications and lowers the risk of cardiovascular disease.[3]

Dietitians are trained nutrition counsellors. They use behavioural counselling and goal setting to encourage healthy behaviour change for patients in their everyday environments. Adhering to the advice given from the dietitian may be difficult because of factors such as a physical and social obesogenic environment surrounding an individual. Strategies to increase the adherence to lifestyle goals that are set could improve the health and aid the treatment of these long-term conditions.

As people experience life in their daily environments, it is important to seek their opinions about what enables and hinders the achievement of their lifestyle goals and to understand what further can be done for them. This information can be used to develop weight management interventions that are in line with identified needs and wants and would therefore be expected to be more effective. Research has not been conducted in NZ regarding what adjunct interventions for at risk populations can be used by dietitians in primary health care.

One potential strategy is the use of mHealth (mobile health) to supplement dietetic counselling. mHealth is a term used to describe a number of technologies that use mobile networks and computers for healthcare delivery.[4] The integration of technology and healthcare is being propagated by the growth and continued use of technology in our daily lives. Mobile phones for many people have become increasingly incorporated into their lives, changing the way people communicate. Recently there has been growth in the research regarding the use of mHealth, as increasing mobile phone access in NZ[5] means they could be considered as an effective medium for healthcare delivery. Within the field of mHealth is the use of text messaging, an intervention medium for healthcare delivery that is being increasingly explored.

Text messaging has proved effective in a variety of health settings, including weight loss, diabetes management, physical activity and smoking cessation.[6, 7] Research on the use of text messaging for weight management is developing. Results of previous research have shown that text-messaging interventions can be effective at producing weight loss results.[8, 9] However there is vast heterogeneity in the system design. Due to the multitude of study design factors, there are different potential designs and settings for such an intervention. Definite conclusions concerning the reasons as to how and why text messages are effective remains to be decided.

Research to date has largely centred on text messaging as the primary intervention. There is no known research to date within a PHO dietetic setting. Prior to clinical design and implementation, the need for using text messaging in this setting needs to be established. Considering that enablers of behaviour change can be specific to an individual or group, it is crucial to investigate perceptions, of how texts could fit into the recipients' life.

The purpose of this thesis is to explore overweight and obese patients' perceptions of what could enhance primary care dietetic interventions, and to investigate patients' perceptions of using text messaging to support them to achieving their lifestyle goals.

2 Literature review

This chapter begins with an overview of the evidence related to obesity and overweight, outlining dietitian counselling as treatment, and evidence relating to improving adherence to treatment. A detailed literature review regarding the efficacy of alternative weight management interventions was outside of the scope of this literature review, as this research primarily regards the perceptions and experiences of dietetic patients. An overview of the research related to the use of text messaging for weight management interventions is described, outlining previous interventions.

2.1 Excess weight and long-term conditions

2.1.1 Trends in New Zealand adults

New Zealand population health statistics show that almost one-third (30.7%) of NZ adults are obese[1] and a further third (35%) are overweight[10]. In the past 30 years the adult obesity rate has increased three-fold.[10] Alongside increasing obesity and overweight rates, the 2013/2014 NZ Health Survey Update showed that rates of diabetes and cardiovascular risk factors such as blood pressure have increased also.[11] Obesity is associated with a reduced quality of life (and an increase in population morbidity and mortality).[12] Long-term conditions also increase cost of living and can cause worry and anguish.[12] At a broader national level, obesity and associated conditions in NZ are generating increased health costs and an economic burden on the health care system.[13] Health loss, also known as the burden of disease, measures "how much healthy life is lost due to premature death, illness or impairment".[14] In an analysis of health loss in NZ, the combination of excess energy intake and dietary risk factors account for 11.4% of health loss.[14] There are significant disparities between the ethnicities and socioeconomic status of those who are obese and overweight and suffer from associated health

issues.[10] Māori and populations of Polynesian descent have disproportionately higher rates of obesity and overweight than other NZ ethnicities.[10] Of the NZ Māori population 46% are obese, and 66% of Pacific adults are obese.[1] Adults living in deprived areas are 1.8 times more likely to be obese than those living in less deprived areas.[10]

2.1.2 Dietitian counselling for obesity management

Dietitians are qualified health professionals who support people with guidance on making appropriate lifestyle and food choices. New Zealand Registered Dietitians meet competencies in applying nutritional science, and effective communication in nutritional counselling, for groups and individuals.[15] Dietitians in NZ work in a variety of settings including hospitals, primary care and the community. Dietitians working in primary care do so both in one-on-one settings and group-based sessions. Nutrition has a vital role in weight management[16] and the management of diseases such as diabetes[17] and cardiovascular disease.[18] Dietitian counselling is shown to have positive health effects for weight loss, and for nutrition and weight related conditions.[19-21] Dietitians New Zealand (the professional association for NZ Dietitians) has provided evidence for the efficacy of dietitians in primary care, presented in a position paper and systematic review. The review presented a collection of evidence that demonstrates the positive effect dietitians have on health and disease outcomes, including on diabetes, body weight and cardiovascular risk factors in the primary care setting.[22]

2.1.3 Fostering adherence to dietary advice

Thus there is good evidence of the efficacy of dietitian counselling. Fostering optimal adherence to dietary advice given in dietetic consultations is an ideal that could assist the creation of positive health outcomes and help manage long-term diseases. Adherence in this setting is patients choosing to take an active and collaborative involvement in following health

professional treatment advice[23], in this case lifestyle recommendations developed with the dietitian. Important in fostering adherence is the patient-centred approach, and developing good patient-health professional relationships.[24] The patients' health beliefs and education also have an impact on their adherence, as they allow patients to actively participate in their own treatment.[24]

A Cochrane systematic review investigating enhancing adherence to dietary interventions identified a number of features as promising to aid adherence.[25] Behavioural contracts, exchange lists, feedback based on self-monitoring, individualised menu suggestions, multiple interventions, portion size awareness, telephone follow up and videos were all promising interventions that had a positive effect on at least one diet adherence outcome.[25] However the authors point out that the research was based in a variety of settings with heterogeneity of study interventions.

Analysing interventions for features that are regularly associated with producing weight loss and behaviour change may indicate a direction for increasing adherence. A systematic review of reviews of intervention components showed that interventions that increased social support, targeted dietary and physical activity, and used established behaviour change techniques were the most effective of the intervention components at producing weight loss and behaviour change.[26] Correlational analyses showed that greater effectiveness was associated with self-regulatory techniques (prompting self-monitoring, goal-setting, providing feedback on performance, and goal review), and providing higher contact time or frequency of contact with intervention personnel.[26] A literature review by Dietitians Canada also found that interventions in the primary care setting were more effective when they were higher intensity (more frequent sessions), when family was involved, and when the number of intervention components was increased.[27]

Barriers to adherence in the dietetic setting may include the amount and frequency of education, and support that can be given during a consultation being limited by time and location of consultations.[28] Additionally the full potential of dietetic advice may not be being maximised in face-to-face dietitian counselling due to the short-term nature of the patients' interaction with the dietitian, and/or the inability to recall and follow through dietetic interventions in real life situations.[29]

Needs assessment is an important first step when investigating and planning areas for health improvement.[30] Needs assessment helps identify from the perspective of the audience what they want and what problems they might have. This is called a "felt need".[31] Establishing a felt need to address a lack of adherence can show future direction for how to improve adherence.

2.2 Text messaging for health intervention

2.2.1 Mobile phones as a medium for communication

Ecological momentary interventions (EMIs) are those that are based in the patient's frequented environments and everyday settings.[32] Mobile phones have become integrated into people's everyday lives. They are personal and portable, and thus provide an ideal medium for communication of EMIs. There is widespread distribution of mobile phone use in NZ, with high levels of mobile phone access.[5] Global trends show similar mobile phone ownership rates between different socio-economic and ethnic groups.[33] Preliminary research conducted in NZ has shown that stand alone mobile phone weight management used as a tool in interventions would be supported in both Māori and non-Māori populations.[34]

2.2.2 Design and setting

The majority of mobile phone interventions have used text messaging as the primary mode of communication, and as the primary intervention. Text messaging has also been used alongside other intervention components including face-to-face counselling[35], group counselling[36] or web based components[37], or subsequent to participation in more intensive weight loss programs.[38-40] More research is needed to understand how these different study designs and differences in settings interact to produce desirable results. A literature search produced no research on text messaging interventions that have been done in a dietetic setting, but one study initiated a text messaging intervention with a single dietitian counselling session.[35] Franklin et al[41] designed a diabetes text messaging intervention that was for use between patients' clinic visits. The intervention did not produce significant changes in HbA1c, however patients reported increased adherence to physician advice, and 90% of participants wanted to continue receiving text messages in this setting.

2.2.3 Behavioural change theories and techniques

Behaviour change theories attempt to explain the reasoning behind why people change behaviour. Behaviour change interventions that are grounded in theory demonstrate greater efficacy for producing health behaviour change compared to those that are not guided by theory.[42-44] However a meta-analysis for text messaging for health behaviours found that the use of theory was not significantly more effective than interventions that did not apply theory.[45] While surprising, this however may be explained firstly by the fact that many interventions though not specifically based on theory, have used theory-based strategies to inform the intervention design. While some studies have explained the use of and measured the theoretical components hypothesised by their intervention[8] and have explained the incorporation of theory in their study, others have not.[46, 47] This makes it hard to find the most effective elements or

theories. Additionally a review on mobile devices for weight loss found that intervention techniques grounded in theory were used however not all possible techniques associated with a given theory were utilised.[48] A number of reviews have reported on the lack of theoretical base in a number of text messaging interventions.[7, 49-51] Given the inherent complexity of changing behaviours, these reviews suggest that the development of mobile health behaviour interventions could benefit from a greater application of health behaviour theories.

At present no research has compared the efficacy of use of different behavioural theories in text messaging interventions for health related behaviour change. However consistent with more general health behaviour change evidence,[52] the Social Cognitive Theory[53] has been commonly used as the primary theoretical basis for many text messaging interventions for weight loss[8, 41, 54] and other health behaviours.[48] Social cognitive theory introduces the construct self- efficacy, which describes an individual's belief and confidence in one's ability to perform a behaviour to produce specific outcomes.[53] More specifically people must believe they can produce the desired effects by their actions, or they will have little motivation to form action and persevere when confronted by obstacles.[53]

'Sweet Talk' developed by Franklin et al,[41] a text messaging support network for diabetes was developed with the goal to increase diabetes self-management self-efficacy in young Type 1 diabetics receiving conventional insulin therapy. Based on Social Cognitive Theory[53] and the Health Belief Model,[55] goal setting and social support were techniques used to increase self-efficacy. Participants received tailored messages, weekly reminders of goals, and daily tips and information to reinforce goals that had been set out in prior diabetes consultations. The intervention participants had significantly higher diabetes self-efficacy than those receiving conventional therapy, as well as higher self- reported adherence and support felt

from the diabetes team. There was however no significant effect seen in diabetic control measured by glycated haemoglobin.[41]

In contrast, in a randomised controlled trial by Haapala and colleagues, participants were assigned to an intervention based on Self-Efficacy Theory (a variant from Social Cognitive Theory). Self-efficacy was not found to have increased in the intervention group, however the intervention group lost more body weight than the control group.[8]

Behavioural theories describes how behaviours develop and are caused, within the theories there are techniques to change behaviour. Behaviour change techniques are the methods that are employed to change behaviour. A systematic review and meta-analysis on mobile devices and their effect on weight loss that did intervention content analysis suggests that interventions should incorporate a variety of behavioural change techniques.[48] Commonly reported behavioural techniques used include 'goal setting',[8, 47, 54] and 'prompting practice'.[47]

2.2.4 Tailoring

Tailoring is a strategy used in health communication to facilitate the effectiveness of communications. Tailoring refers to producing communications that are individualised for their receivers, thus making the information relevant, and thought provoking, in an attempt to prompt initiation of action.[43, 56, 57]

One meta-analysis of the efficacy of text messaging based interventions for improving a variety of health behaviours and health outcomes found that tailored messages produced the largest effect sizes.[45] There have been no randomised controlled trials done comparing individually tailored versus generic text messaging for health behaviours, to isolate the effects of tailoring. Additionally comparison between the effectiveness of standardised interventions and tailored interventions is difficult because tailored interventions vary in the degree and method of tailoring included. In general health communication it has however been established

that printed tailored health messages are more effective than non-tailored in eliciting behaviour change.[58]

A text messaging intervention by Joo and Kim[46] sent participants non-tailored text messages on dietary and lifestyle behaviours. The study showed significant reductions for participants in body weight of 1.6kg and waist circumference of 4.3cm. Measures were however only made in study completers, which comprised only 47% of the original study population. The high rate of participant drop out perhaps indicated that the intervention failed to engage with the majority of participants. The positive effects seen in study completers however indicate that standardised text messaging interventions may have a role to play in obesity management.

Tailoring of text messaging interventions can be achieved in a number of different ways, one being relating text message content to an individual's characteristics. A number of text messaging interventions have incorporated some level of tailoring in their intervention. Popular methods of tailoring content include text messages on, individually set goals,[36, 41, 54, 59, 60] relevant behaviour change theories (discussed below in 2.2.5),[35, 37] and personalisation (for example using the persons' name).[59] An online study on messaging preferences for mobile messaging interventions showed that there was a preference for messages presented either in first person singular or second person to messages in first person plural. The authors suggest this may indicate participants may prefer to be identified as individuals as opposed to members of a group, and prefer to identify the message originator as an individual they know.[61]

Another method of tailoring used in text messaging interventions, is providing personalised feedback to participants. Bi-directional text-messaging interventions allow participants to submit information and receive feedback. A number of text messaging interventions have included participants submitting data and getting feedback as a mechanism

of tailoring.[35, 41, 60, 62] Franklin et al[41, 63] had participants submit data and questions to the research team. Responses to requests for personal experiences and tips generated 40% of all the incoming messages. Patients submitted 1180 messages, however five users contributed to 52% of the total, showing that this was a well-liked feature for a small proportion of participants. Similarly Park and Kim[64] ran a combined Internet and text messaging intervention aimed to help reduce cardiovascular risk factors in woman with abdominal obesity. The text messaging component delivered three text messages per week. The third message of the week was formed from researchers integrating participant submitted information and then providing a recommendation on diet and exercise to each patient, by text message and the internet. Waist circumference and body weight both decreased significantly.

A small pilot study by Donaldson et al[39] had participants text in twice per week, and received practitioner feedback. Participants' waist circumference and BMI were reduced significantly, and all 15 participants were satisfied with the program. There was however no comparison to a non-treatment group in this study. Feedback was available via mobile phone, during and outside of conventional work hours, the benefit being that the support was being provided when the patient needed it the most. Realistically few health professionals would be financially able to and willing to provide support at these times.

While results show that these interventions successfully improved intervention outcomes, they also included a high level of labour intensity and researcher input. Such interventions will not be appropriate for all settings, and further improvements are needed for automation of tailored text messages (by using computer algorithms and programs) while maintaining support to ease practitioner burden and cost.

2.2.5 Frequency and timing of delivery

The frequency and timing with which an intervention study texts participants is another design and tailoring aspect of text messaging interventions. The frequency of text messaging dictates the exposure to the intervention. Repeated exposures to messages leads to familiarity and increased effectiveness however, too many messages and repetition may lead to tedium, increased boredom, and become burdensome.[65] A meta-analysis of randomised controlled trials for text messaging and healthy behaviours showed that multiple text messages per day showed a significantly greater effect than that of lower frequency.[50] A review of the use of text messaging for a variety of health behaviours, showed that text messaging delivery frequency often reflected the expected frequency of the targeted behaviour (for example, diabetes blood glucose monitoring 3/day, exercise 5/week).[49] Only in smoking cessation has the effect of different message frequencies been investigated, one study showing that different text message delivery frequencies (one per week versus three per week) had no difference in effect on quitting smoking.[66] Studies that have utilised text messaging for diet and weight outcomes have used a variety of different frequencies to contact participants, ranging from twice per day,[59] daily,[40, 60] four times per week, [35] three times per week,[38, 64] twice per week,[39] or participant selected frequency.[38, 47] Formative research done for the development of a phone based weight loss intervention, showed that NZ participants indicated that 13.7% would like to receive text messages less frequently than daily, 37.6% once a day, and 48.7% more often than once a day.[67]

There are no clear conclusions to be made on how the frequency of receiving text messaging, and thus the intensity of the intervention, may effect intervention outcomes. The variety of frequencies with which text message interventions have been employed is likely

decided considering other design features, participant characteristics, and the setting of the intervention.

2.3 Effect of text messaging interventions on recipient outcomes

2.3.1 Satisfaction and acceptability

Satisfaction and acceptability of interventions play a crucial role in their ability to produce weight and behavioural change. A NZ study looking at the feasibility and acceptability for a weight management obesity program found that of the study completers, 28% rated the program as 'extremely helpful' or 'very helpful'.[59] Other feasibility research demonstrated strong support for a mobile health weight management intervention, a telephone survey of 200 New Zealanders had 75% of Māori and 65% of non-Māori saying they would use a mobile phone weight loss intervention.[34]

From the studies that have measured satisfaction or acceptability, text-messaging interventions have produced high levels of satisfaction from over 75% of participants.[38, 60, 68] The high level of satisfaction needs to be interpreted cautiously, as measures are made only in study completers, not in those who have dropped out of the study. High rates of study attrition have been seen in some text messaging interventions[46] and other technology-based interventions such as web-based interventions.[69] This may indicate dissatisfaction with the intervention.

2.3.2 Dietary habits, weight loss and behaviour changes

The effect of text messaging interventions on weight loss has shown positive results. The heterogeneity in theories, techniques and system design of text message interventions used (mentioned in section 2.2.2), make it difficult to attribute intervention success to specific components. Text messaging has been shown to have a small positive effect on a variety of

healthy behaviours.[50] A systematic review and meta-analysis of the influence of mobile devices (including personal digital assistants) and weight loss showed that of the twelve studies included, eight of them found significant changes in weight loss. When comparing mobile intervention groups with controls receiving no intervention, as well as controls receiving other types of weight loss interventions, mobile devices were more likely to produce the desired weight loss effect.[48] A review of the effect of text messaging interventions on weight loss showed that eleven of the fourteen studies reported statistically significant reductions in body weight.[9]

Patrick et al[47] evaluated a weight loss program for overweight adults and reported that participants receiving text and multimedia messages lost 1.92kg more than the control group who received monthly health newsletters. Similarly, a randomised control trial on overweight adults demonstrated tailored messages on weight loss and healthy eating was effective for weight loss and waist circumference reduction, compared to the control group.[8] Participants receiving the mobile text message intervention lost significantly more weight than the control group (4.5kg versus 1.1kg) and had a greater reduction in waist circumference (6.3cm versus 2.4cm).[8] The comparison with a group receiving no treatment provides evidence for the effect that text messaging alone can have on weight loss.

A study by Shapiro et al[54] found that although participants self-reported that weight loss behaviours increased, there were no differences in weight loss at 6 months, nor at the end of the intervention at 12 months. However an increase in physical activity was seen in participants. A text messaging intervention in young adults showed a similar lack of change in body weight and dietary habits compared to controls that received a booklet and brief dietetic counselling session.[35] Both study authors suggest that increased personalisation and ongoing adaptation to maintain interest could increase the likelihood of significant weight loss.

3 Objective Statement

The incidence of obesity and long-term conditions in Māori, Pacific and people living in areas of high deprivation is a significant health concern in NZ. In an effort to reduce inequalities experienced by these groups, dietitian counselling in primary care targeted at these populations may be an effective treatment to improve health outcomes. However improving adherence to primary care dietetic interventions will further improve health outcomes.

Recent text messaging services for weight loss interventions have produced successful results. Research to date has shown that text messaging is an acceptable principal medium for program delivery. There is however vast heterogeneity of the design and setting of text messaging interventions, making it difficult to draw conclusions on exactly what characteristics contribute towards the positive outcomes. Furthermore there has been no research regarding text messaging as an adjunct to dietitian counselling in a primary health care setting. Given the dietetic counselling patients are already receiving, their needs and wants for a text message service in this setting may be different from that documented in previous research.

When developing health interventions it is critical to explore the opinions of the recipient. Understanding what patients believe would help them from their lived experiences, will inform the development of fitting and culturally appropriate interventions.

The overall aim of this masters thesis project is to explore overweight and obese patients' perceptions of what could enhance dietitian intervention in primary care, and investigate whether patients perceive that text messaging could support them to achieving their lifestyle goals.

The research objectives developed for this study were, in a target audience of dietetic patients who are overweight and obese, Māori, Pacific or people living in areas of high deprivation, to:

1. Explore the target audiences' perceptions of what could enhance face-to-face dietetic intervention between appointments in primary health.
2. Investigate the target audiences' perceptions of receiving text messages as an adjunct to dietetic counselling, to support patients' health related goals.

4 Methodology

The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used to inform design and reporting of the study methods.[70]

4.1 Study design

4.1.1 Qualitative research

This study aimed to gain an understanding of perceptions of supplementing dietetic intervention and the potential of text messaging in this context. This study utilised a qualitative research approach. This method was chosen, as qualitative research is exploratory in nature, in that it attempts to describe, understand and explain the meanings people give their lived experiences.[71] This approach should allow in-depth insights to the experiences of those who have seen a dietitian, and had the experience of trying to make lifestyle changes.

This is phase one of a two-phase study. The next phase will use the results of the current study to continue research into the potential of supplementing dietetic intervention within the TeAHN organisation.

4.1.2 Methodological framework

A phenomenological approach was deemed suitable for this study. Phenomenology describes the theoretical perspective that aims to generate an understanding about the experience and perceptions of individuals in relation to a phenomenon of interest.[71] Phenomenology was used to explore the target audiences experiences of making lifestyle changes and thus explore how they perceived dietetic intervention could be enhanced, and if and how text messaging could be useful in this context.

4.1.3 Focus group methodology

This study used focus groups to generate data. Focus groups were chosen as the data collection method because they allowed participants to share their lived experiences. Focus groups were chosen over other qualitative data collection methods as stimulating conversation between participants was seen to be advantageous for a number of reasons. Firstly, focus groups allow for a range of opinions to be shared. Additionally whether in agreement or disagreement with peers' opinions, comparing and contrasting ideas can help participants to become more explicit in their own views. For the researcher, the discussion of differing points of view can lead to a deeper level of understanding, particularly when discussing complex behaviours such a dietary and lifestyle change.

Five focus groups were held between the months of August and September 2015.

4.2 Ethical approval

Ethical approval was obtained from the University of Otago Human Ethics Committee under Category B (Appendix A).

4.3 Research team and reflexivity

4.3.1 Personal characteristics

The candidate was the primary researcher for the study. She facilitated the focus groups, using guidance on the facilitation style described in Krueger and Casey.[72] A community dietitian took field notes for each focus group. She provided a summary of participants' responses and common concepts at the end of each focus group.

4.3.2 Relationship with Participants

Eligible participants were recruited from the TeAHN patient database 'MedTech'. Neither the facilitator nor the field note taker had relationships with any participants prior to

initial recruitment phone contact. At the beginning of the focus groups participants were informed via the participant information sheet (Appendix B) and the introduction provided by the facilitator that the research was being done as part of a Masters of Dietetics. The facilitator gave a brief mihimihi in Māori and an introduction in English about herself at the beginning of each focus group, in line with Tikanga Māori, to establish connection between the facilitator and participants, and a comfortable environment in which to speak and share.[73]

4.4 Participant selection

4.4.1 Inclusion Criteria

Participants were considered eligible to participate if they met the following inclusion criteria:

- Age >18years
- Body Mass Index (BMI) >27kg/m^2
- Able to converse in and read English
- Identified as one of the following:
    - Māori
    - Pacific
    - Living in areas designated 9-10 according to the NZ Deprivation Index.[74]

4.4.2 Sampling method

Purposive sampling was used to select participants. Purposive sampling refers to the selection of 'information rich cases'.[71] This method was chosen as the research was seeking the perspectives of a specific group. Medical records and contact details of patients who had engaged in the Dietetic service from 01/01/2015 to the 13/08/15, and who met the inclusion criteria for ethnicity and Deprivation Index,[74] were obtained from referral information and

exported to Microsoft Excel. Potential participants were classed as having engaged in the service if they had participated in an appointment with the dietitian this having taken place either in their home or workplace, at the Te AHN address, or via phone.

4.4.3 Screening

Records of patients were screened for whether they met the inclusion criteria for age, BMI, ethnicity and Deprivation Index.[74] Screening for English speaking was done over the phone. For a small number of eligible participants whose records lacked BMI data, height and weight were asked for in the recruitment phone call.

4.4.4 Recruitment

Recruitment phone calls were conducted between 28/07/15 and 02/09/15. The primary researcher described the project aims and background, a general overview of what would be addressed in the focus groups, and screened for participant inclusion criteria. Participants were also informed there would be a $20 supermarket voucher to compensate for associated expenses. If eligible participants needed time to consider whether they would participate, they were provided with the phone number of the primary researcher. Reminder phone calls were made to participants 24 hours prior to their scheduled focus group.

4.4.5 Focus group size

Focus groups were scheduled with the number of participants ranging from seven to twelve participants. This size was predicted to be manageable by the facilitator.

4.4.6 Informed Consent

Participants provided verbal consent during the initial or the reminder telephone call. Participants were provided with an information sheet and an informed consent form to sign

before beginning the focus group (Appendix B). Participants were offered the opportunity to ask questions during the phone calls and at the beginning of the focus group.

4.5 Setting

Focus groups took place in a room at the TeAHN address in Lower Hutt. Focus group dates and times varied depending on participant preference and availability gathered from recruitment calls. Participants were seated at a round table with the facilitator, with name placards (first name only) for identification purposes. Only participants, the facilitator and the field note taker were present during the focus groups. Beverages such as tea and water were offered. Participants received a $20 voucher for a local supermarket chain at the end of each focus group, as a form of recompense for associated travel costs.

4.6 Data collection

4.6.1 Focus group structure

The focus groups ran for between 60-70 minutes. The facilitator provided a short introduction and orientation as to how the discussion would be conducted, before participant introductions and an icebreaker. The facilitator then began discussion using the focus group schedule questions as a guide (Appendix C). Within 24 hours following each focus group, the facilitator and field note taker had a debrief meeting. A standardised debrief document was filled out and discussed (Appendix D).

4.6.2 Focus group questioning schedule

The focus group questioning schedule (Appendix C) was developed using guidance from Krueger and Casey.[72] This guide was refined using feedback from the primary supervisor and advisors, who are all registered dietitians with experience with the target audience population. This guide included discussion prompts, some of which were informed by the

literature review (section 2.0). Ideas that prior focus groups had discussed were also added to the list of prompts. The purpose of the prompts was to stimulate and encourage conversation, particularly if the focus group was reticent regarding a question. Not all prompts were used in every focus group. The questioning schedule also had a time schedule to keep focus groups to one hour. Each focus group followed the same interview guide. However an iterative approach was taken in which the facilitator used focus group feedback and debrief sessions to expand on questioning and prompts, to clarify key topics of interest for subsequent focus groups.

4.6.2.1 Pilot testing of focus group questions

The facilitator completed an initial pilot test with eight female acquaintances. Feedback prompted slight changes to wording of the questions. Focus group questions were then pilot tested with one member of the TeAHN staff who met the target audience inclusion criteria, and then with one female member of the target audience. This participant was recruited from a clinical appointment with a TeAHN dietitian. The aim of these pilot tests was to assist in determining the ability of questions to generate desired discussion, the time required for discussion, and to prepare the facilitator for conducting focus groups. Feedback prompted changes to the focus group questions to improve understandability; from this the final focus group question guide was finalised and focus group meetings scheduled to allow for one hour of participatory discussion.

4.6.3 Use of resources in focus groups

Two visual resources were developed to visually supplement meaning and interpretation of the focus group questioning schedule.

The first resource was a visual illustration, designed to depict that the focus groups were aiming to gain information about participant's perceptions in between appointments. This was

to highlight that the focus groups were not seeking feedback on the individual dietitians employed by TeAHN (Appendix E).

Following the first focus group, supplementary visual materials were developed to assist participants in understanding the concept and potential of text messaging between the dietitians and patients at TeAHN (Appendix F).

4.6.4 Audio recordings and field notes

Four audio recording devices were used to digitally record each focus group. Field notes were made during the focus groups. The field note taker sat at a separate table to participants for anonymity. A standardised template (Appendix G) was used to record key discussion points relating to each focus group question, and to record visual and unspoken responses to key discussion points. The participant seating arrangement was recorded, and participants assigned a participant number. The field note taker was introduced in the beginning of the focus group. At the end of the focus group, the field note taker delivered a brief summary of main discussion points for each question of the focus group schedule and participants were invited to voice any changed or final thoughts.

4.6.5 Data saturation

Initially a series of three focus groups were planned due to the time constraints of the primary researcher. After the initial two focus groups, the number of focus groups was extended to five in an effort to reach saturation. Saturation is said to occur when new participants no longer elicit trends or themes not already raised by previous participants.[71] From the debrief meetings between the field note taker and the primary researcher it was decided that in order to reach saturation the number of focus groups should be extended to five. At the conclusion of the fifth focus group it was decided that saturation had been reached for many of

the focus group questions. Due to time constraints, more focus groups were not held to reach complete saturation.

4.6.6 Transcripts

The primary researcher produced unabridged transcriptions of audio recordings. Transcription was prepared using NVivo 10 qualitative analysis software.[75] Transcription of each focus group was commenced promptly after each focus group. Participant names were not recorded on transcripts; participant numbers that had been assigned in the focus group seating arrangement were used. This was done to ensure participants confidentiality and anonymity. Names of TeAHN staff were not transcribed, instead their job description was used as replacement, for example, [dietitian] and [healthy family coach].

4.7 Analysis and Findings

4.7.1 Data analysis

Thematic analysis was used to deduce themes from transcripts of audio recordings and field notes. Thematic analysis is "a method for identifying, analysing and reporting patterns (themes) within the data".[76] The process of thematic analysis used was informed by the steps described in Braun and Clarke[76] and adapted in Liamputtong.[71] An inductive approach was taken, in this way analysis was data-driven, and done without trying to fit to a pre-existing or preconceived coding frame.[76] Each stage of analysis was recursive.

The researcher became familiar with data by listening to recordings, transcribing, and reading of transcripts. Field notes were incorporated into analysis as additional comments on the complete transcription. Coding was done using NVivo qualitative data analysis software.[75] The transcripts were coded initially by applying short verbal descriptions to text units using both participants' own words, and meanings interpreted by the primary researcher. The same

unit of text could be coded at multiple codes. Existing codes and new codes were analysed for similarities and linked together using parent and grandparent nodes in NVivo 10.[75] Themes were constructed by identifying similarities in codes and collating them. Themes were reviewed, and the name, nature and essence of each theme concluded. The primary researcher developed a framework for the themes to link the findings to the research objectives.

Two community dietitians individually each conducted thematic analysis on two focus group transcripts. The community dietitians and primary researcher discussed the findings of each separate analysis to facilitate the validation of the findings. Discussion of each of the codes that had been applied, determined that the independent coding had reached similar conclusions to the primary researcher. Differences in codes were discussed until agreement was reached. Following this discussion the primary researcher reviewed all transcripts and codes and finalised the themes.

4.7.2 Reporting

The framework of themes formed the basis of the results section. From this framework themes were discussed and quotes selected to illustrate the substance of the theme. Quotes used in reporting were not literal, but were cleaned up for readability. When transcribed data was used to illustrate a topic, the focus group (FG) number and participant (P) number from which it came from accompanied it. For example FG1 P3.

5 Results

5.1 Focus group recruitment

Phone calls were made to 112 individuals, and 40 were booked in to attend focus groups as shown in **Figure 5.1**.

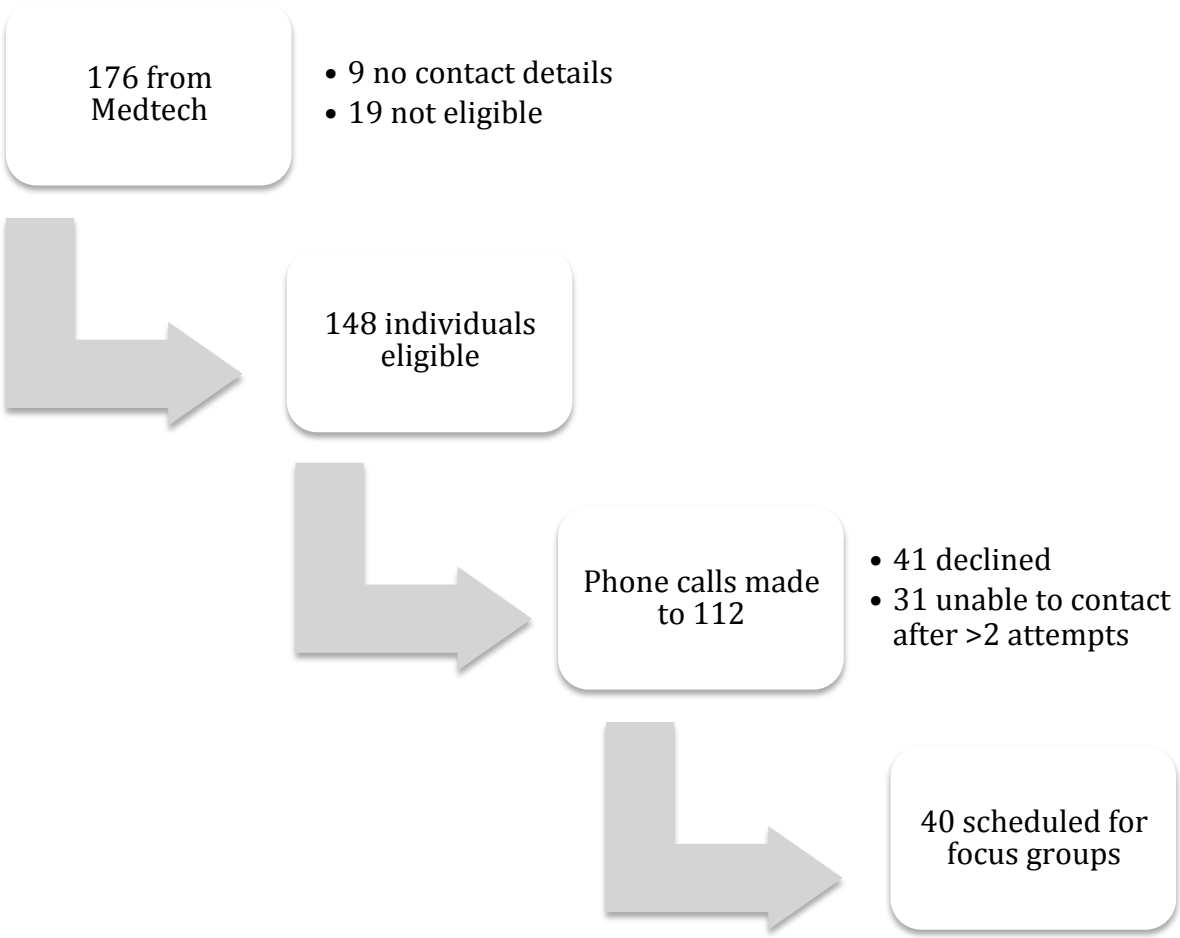
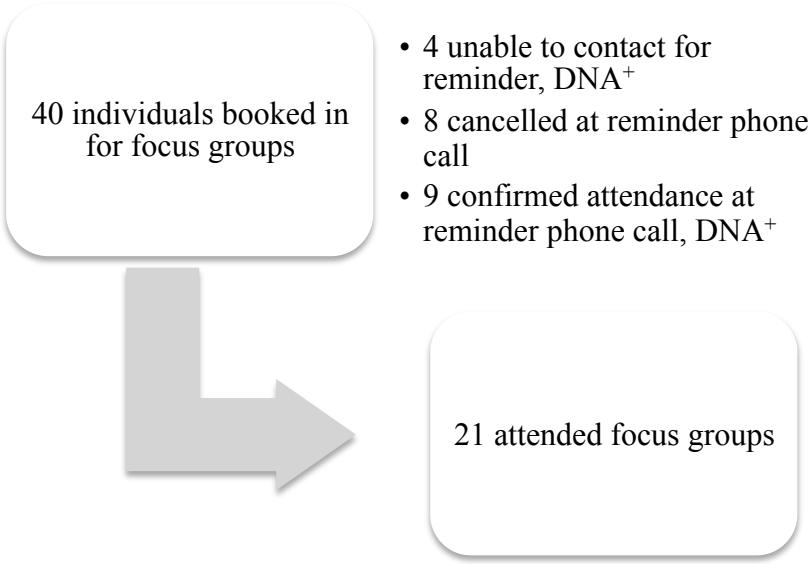


Figure 5.1 Recruitment process

5.2 Characteristics of participants

5.2.1 Focus group attendance

There were 40 individuals booked in to attend focus groups. As shown in **Figure 5.2** there was a high rate of patients who Did Not Attend (DNA) the focus group they had booked into. Two individuals were rebooked following previous DNAs from groups.



+DNA - Did Not Attend

Figure 5.2 Focus group attendance

5.2.2 Participant characteristics

There were a total of 21 study participants. As shown in **Table 5.1** the mean age of participants was 45 years. The mean BMI for males was 44.1kg/m^2; for females it was 41.7kg/m^2. There was a high Māori proportion; 13 of the 21 participants were Māori. There was a high proportion of participants that live in areas of high deprivation. Type 2 diabetes,

hypertension and hyperlipidaemia respectively were the most common conditions in participants. Some participants had more than one long-term condition, and some had none.

Table 5.1 Characteristics of focus group participants

Characteristics	Number of Participants
Age (years)	
18-34	6
35-50	5
51-65	10
Mean	45
Sex	
Male	6
Female	15
Ethnicity	
Māori	13
European New Zealand	4
Samoan	3
Cook Island Māori	1
Deprivation Index[a]	
1-2	3
3-4	0
5-6	2
7-8	3
9-10	13
Body Mass Index kg/m^2	
<30	0
30-35	3
35-40	5
40-45	7
>45	6
Male mean	44.1
Female mean	41.7
Long-term conditions	
Type 2 Diabetes	7
Pre-diabetes	2
Hypertension	6
Hyperlipidaemia	5
Polycystic ovarian syndrome	2
Obstructive sleep apnoea	2

[a]Living in areas according to New Zealand Deprivation Index (60)

5.2.3 Focus group characteristics

As seen in **Table 5.2** the number of participants ranged from 2 to 5 in each focus group. There were more females than males in every focus group, and no males in focus group 3.

Table 5.2 Characteristics of focus groups

Focus group number	Number of Participants	Male/Female
1	5	2/3
2	4	1/3
3	2	0/2
4	5	1/4
5	5	2/3

5.3 Themes

These themes were extracted from the data using thematic analysis. Based on the data, themes were grouped into the framework as shown in **Table 5.3**.

Table 5.3 Framework of themes

Objective	Theme Number	Theme
Enhancing dietetic intervention[a]	1	Self commitment
	2	Role of family
	3	Social support outside of the family
	4	Information
Text messaging[b]	5	Positive potential of text messaging
	6	Personalisation and tailoring
	7	Desirable features and content
	8	Frequency

[a]Research Objective 1: Explore the target audiences' perceptions of what could enhance face-to-face dietetic intervention between appointments in primary health.
[b]Research Objective 2: To investigate the target audiences perceptions of receiving text messages as an adjunct to dietetic counselling, to support patients' health related goals.

5.3.1 Objective 1

Themes in this section relate to the research objective: exploring the target audiences' perceptions of what could enhance dietetic intervention between appointments. Within some themes findings relate to both facilitators and barriers to making lifestyle changes for participants, and provide direction for targeting future interventions.

5.3.1.1 Theme 1: Self commitment

A clear theme was that participants felt a major reason for unsuccessful attempts to improve lifestyle was related to lack of self-motivation. Participants described sticking to plans for a short time before inevitably failing due to their lack of self-control and commitment.

> *"Well for me I came and I did start off very well, and you're enjoying it, and you hit that thing where you're like it's there do it, but then there's this here and I will do that. So yeah for me personally its self-control and actually ensuring that I stick to something instead of faltering away."* FG4 P3

Participants also described themselves as procrastinators. They suggested reasons for this were related to a lack of motivation and support as well as the journey being a long one.

Participants felt making small goals were instrumental to making changes. Participants described that being able to achieve those small goals in certain time frames, helped them psychologically.

> *"They made them small goals, so that it's more achievable within times frames, and it's actually worked. "* FG2 P4

> *"On this journey finding out the nutritional value of food, losing weight, calories, that's a lot of stuff to have to deal with. I had to decide that I was just*

going to deal with one thing at a time and give the rest away… some of us just need to do one thing at a time, and that's what stopped me on this journey at the beginning, because I was dealing with everything, I reckon you guys should just say it's alright to just start with one thing at a time…. It's a lot to deal with, and those were my barriers, but being here I was able understand that." FG5 P2

In contrast to the majority of participants, there was a distinct difference in opinion from three male participants. These men felt strongly that making lifestyle changes was about making the decision to change and then simply acting on that. They didn't struggle with self-motivation and commitment the way many other participants did.

"A lot of the korero actually comes back to you, the onus of responsibility actually comes back to yourself… at the end of the day you make the decisions, we're the ones who make that final decision, are we going to do it or not." FG4 P4

Participants also identified a number of reasons that were perceived as outside of their control that were barriers when trying to make lifestyle changes. These were environmental aspects, such as two participants mentioned food cost as a barrier, describing unhealthy foods being cheaper than healthy foods. The availability of healthy convenience food was also raised. Two participants mentioned weather as a barrier to exercise.

5.3.1.2 Theme 2: The role of family

The majority of participants expressed that family had a large impact on their mindset, approaches and ability to make lifestyle changes. Family was described as a key motivator for

making changes for a substantial number of participants. For some, staying alive and healthy to be around family for longer was a major reason to adopt and persevere with lifestyle changes.

> *"Both my parents were diabetic, and with severe diabetes, and so it was about me growing up with my children, growing up with my mokopuna, so that has been a radical change in frame of mind for me."* FG2 P1

Additionally some participants described how the support they have received from their family had been instrumental in their experience. For a small number, the willingness of family to be involved and adopt lifestyle changes had been helpful.

> *"I'm quite lucky because I have that support of my partner and my son, and they are in the same boat with me, you know I've always told them you don't have to, you know just because I'm diabetic you guys don't have to drop or go off your foods. They chose to come along with me as well, so it's good for my whole family especially my son who is young, he's a ten year old, so yeah major changes in our household."* FG5 P1

In contrast, family was also described as something that made lifestyle changes difficult. Some participants described different taste preferences of partners or children made it difficult for participants to stick to healthy food choices. It was also raised that there is difficulty in having good time management when organising and preparing healthy enjoyable meals for busy families.

> *"Because I have a very very busy family, extremely busy, sometimes either so busy you don't pull out a meat in the morning to defrost, or getting home late so by the time we get home you have to cook a meal for all over the place, and we*

don't want to have to cook two separate meals, because I have to eat this way, and they don't." FG4 P5

In participants who felt this way, it was regularly associated with how having the diet they felt they should have meant they needed to have separate meals from their families.

5.3.1.3 Theme 3: Social support outside of the family

The importance of getting social support from sources outside of the family arose as a theme in all five focus groups. When asked what further actions the dietitians could take to support patients, the majority of participants agreed that maintaining and increasing contact between appointments would be helpful. Participants felt that sometimes the long periods between appointments or contact with their dietitian, meant they could get side-tracked from continuing with positive changes. They expressed that some contact could be beneficial. Participants felt that this would let them know someone cares, be an extra motivation and increase accountability towards the dietitian.

"There's either phone or text, or find out how I am going, yeah in-between [appointments], just see how I'm going, see if I'm on track…instead of once a month, trying to think what you have done that month, if you do it every couple of weeks just to see how you're going you would find it better. Someone to talk to, to help you out, to give you that motivation to carry on." FG1 P2

A few participants described wanting to initiate contact or support at a particular time of need. When asked if there was anything they could receive that would help them to achieve their goals, one participant described:

"When I was with [dietitian] I asked her if it was okay for me to text her to ask questions that I come up with during the week, because you need that interaction straight away, you need that quick response, not to have to wait for the response. So you know how to deal with what you are going through right now, does that make sense, it's like that text service that you are talking about… sometimes you get I don't know what's happening to me today can you give me a hand or something. Help me change my frame of thinking." FG5 P2

Participants suggested contact as being either a phone call, email or text message. Three participants mentioned that they would prefer to talk over the phone than have a conversation via text messaging. A small number of participants suggested and were enthused by email contact in-between appointments.

"Maybe emails between appointments, or like being able to go, I might not have achieved part of my goals but I have done part of it this week… focusing on what you have done not what you haven't done, just as extra encouragement." FG4 P2

"Maybe like an email a recipe a week and your goal is to make this healthy meal, and that could be tailored to whatever you have discussed with your dietitian." FG4 P3

A small number of participants described a strong desire for social support from people in a similar health circumstance, such as a group setting. These participants described themselves as social persons that wanted to work with other people to achieve similar goals.

"I find if you're trying to get fit and healthy and things like that, change unhealthy lifestyle to a healthy lifestyle, don't do it alone, do it with people, like with us, we could all start our own group and do it together. Don't do it alone, that would be my idea… yeah that's what I want, to be in a group where you all just go out once a week for like two to three hours, and then you could do a day here and a day there by yourself. Its horrible trying to be healthy on your own" FG1 P1

The focus group participants who had standard working hours said that many of the community group exercise sessions offered took place during working hours and so were not suitable. Those that had partaken in gym and community group classes had overall positive experiences with them. One participant described how the accountability of attending the groups to his peers, was encouragement to continue attendance.

"I love the classes because I think sometimes they'll say we didn't see you last week, and I think oh somebody missed me, it's a bit of a drive, see I'm not there and they remember and they know I'm not there, and I will say the same thing, you know there is that social, and that pushed you." FG5 P4

5.3.1.4 Theme 4: Information

Half the participants felt that being informed, and understanding food and its relationship to health had been a major influencer in changing their behaviour.

"My long term goal is to lose the weight, my short term focus to get there is to understand what I'm putting in my body, so that's where I am, understanding food… I ask my dietitian, why is that different, why are carbs different, tell me,

what's the difference between the little bit of expensive meat to the cheap meat, oh the fats; yes there's fats in cheap meat. Changing how I think is what's helped me to understand quality food. It's not just any food." FG5P2

Participants described a number of resources given to them by the dietitian as helpful. These tools often related to learning about basic nutrition in relation to different food types and macronutrients.

Those that had used an exercise and calorie counting app, said it had helped with their understanding of food, self-monitoring and portion control. Similarly, use of a nutrition information panel guideline in the form of a label reading wallet card had been helpful in understanding and purchasing foods.

"The little card you take shopping with you, and look at the hundred milligrams of food, and sugars and fat, having that as a tool has been eye opening." FG2 P2

Some participants identified that meal plans and recipes books were helpful. Similarly pictures of meals given to them by the dietitian had been helpful when trying to choose healthy options for meals. When asked what further they would want to help them achieve their goals, many participants expressed a desire for recipes and meal plans.

"Yeah I think that having suggestions, perhaps, what I would have liked, and would have helped to have had, it's like, ok you don't want to be eating these, but what are we going to be eating instead. So kind of like just some suggestions even, you know because sometimes you just don't know what to make, or what to cook, or yeah, I think that would be helpful." FG4 P2

This was due to a lack of confidence in cooking skills, and for many it was from a lack of variety of ideas for healthy appetising meals. Some participants described wanting recipes and meal plans set out, so that they have been given definite structure of what they were supposed to do.

5.3.2 Objective 2

Themes in this section relate to the objective: investigating the target audiences' perceptions of receiving text messages as an adjunct to dietetic counselling to support achieving their goals.

5.3.2.1 Theme 5: Positive potential of text messaging

The majority of participants had a positive response and interest in the potential of using text messaging as a form of contact between the dietitian and patient. There were multiple interlinked explanations to describe how and why increasing the contact between dietitian and patient in-between patients appointments by texting was seen to be of use. Firstly, when asked what participants liked about the idea of text messaging between appointments, they reported that it could increase their motivation and give them encouragement.

> *"It would be helpful if you're in-between the times you see your dietitian, that you get a reminder or some encouragement along the way to help you achieve the goals you have set out in-between appointments, and I think there is a real positive with using the technology coming through today. I think it could be a really great thing to keep you on track."* FG2 P2

Another frequently mentioned benefit of texting in-between appointments was the belief that the text message would serve as a reminder of key points that were spoken about in the

appointment. Participants felt it would help them to be more mindful of what they were trying to achieve.

> *"Basically a reminder of everything you have spoken about in the meeting, so sending like little cue cards, but through texting, and just point out the important parts, and maybe if you text once a week or once a month, just the important parts of the goal, what your goal is and like come on we know you can do it, this is your goal and you know… try beat this goal before we see you."* FG1 P5

It was proposed that these text messages could be looked back upon for review. The text messages could be easily located to look at multiple times and reflect upon, to help jog participants' memories and to remember forgotten discussion points. Remaining attentive to the ideas discussed with the dietitian was also proposed as a way a text would help individuals make plans.

Lastly, text messaging was seen to be a potential avenue for social support. It was expressed that participants would like to feel that somebody cares about them. Participants also discussed that the text messages from the dietitian could increase the feeling of accountability to their dietitian, and thus prompt action from individuals.

> *"So it's like getting feedback. If your dietitian texted you in-between appointments it's like they are watching you, so you have got to make sure you do it, so its like an extra boost as well."* FG1 P5

Although the majority of participants had a positive response towards the idea of receiving text messaging from their dietitian, a small number also raised concerns that receiving

text-messaging relating to their lifestyle and goals could potentially have a negative effect if that individual felt like they were failing.

Two thirds of participants reported a high frequency of use of their mobile phones. The remaining third reported lower use, engaging with it less frequently or intensely. One focus group participant did not own a mobile phone, as he had no trust in mobile phones. Aside from this individual, all participants liked being texted regarding appointment reminders.

5.3.2.2 Theme 6: Personalisation and Tailoring of text messages

A recurrent theme in focus groups was a view of the need for personalisation and tailoring of text messaging. Participants stressed that messages must be individualised. The majority did not want to receive standardised messages that they recognised as being automated or messages that obviously had been sent to a group of people. Participants emphasised that the messages needed to be relevant to them, and preferably designed to suit their progress and current development.

> *"One size doesn't fit all, so to speak, and think that if I was getting these random text messages and they didn't have any relevance to me I would just be getting annoyed. I would want something that was relevant to me."* FG4 P2

This theme of the need for personalisation reoccurred throughout the dataset, presenting in different conversations. When asked what types of text messages participants would like to receive, participants responded with descriptions relating to reminders, goals and tips, all of which were specific to their own goals. Two participants said that if they received text messages not relevant to them they wouldn't be annoyed, as they would just ignore or delete them. A small number of participants felt that automated messages could have potential, however maintained that they would still prefer personalised text messages.

5.3.2.3 Theme 7: Desirable features and content

The majority of participants initially imagined the text messaging to be bi-directional, and for many it was thought they would be conversational. Three participants explicitly described that if the text messaging was not bi-directional then they didn't see the value in it.

> *"I think the biggest thing for me is knowing that I can reply to that text, that's about it really, knowing I can reply, should I ask or need to ask a question."*
>
> FG4 P4

Discussion revealed that it was seen that it was preferable to have contact with their dietitian and not with an automated system. Further, it was desirable to be able to initiate contact during times of need, and receive a response. Those times were when participants felt vulnerable and needed additional support, or wanted to ask a question relevant to their current situation. Participants felt that text messages should not be framed as a question unless they were able to send a reply. However a message that was a statement or practical tip message wouldn't warrant a reply.

In addition, there were three clear preferences for content for text messages: goal reminders, simple advice or information, and motivational messages. The majority of participants would want the content of text messages to be linked to their specific goals. They would want reminder statements regarding their goals, as well as tips that related specifically to achieving those goals. A small number wanted nutritional information, or fun facts, and if the text message was designed to be informative most would want this to be new information to the individual (unless it was key information being reiterated from their dietitian appointment). Participants described that they would want motivational messages, however when prompted to

formulate an idea of what these messages would say, participants found it difficult to know what would motivate them. When shown the text message examples (Appendix F) participants reported they liked their direct and brief nature.

5.3.2.4 Theme 8: Frequency

The majority of participants thought that receiving texts once a week or fortnightly was preferable. Most participants did not want text messages more frequently than once per week. Receiving more than this would cause irritation and disengagement from the communication. The idea of receiving text messages everyday was seen to be annoying and a nuisance.

> *"You wouldn't want a text more than once every two weeks, you wouldn't want the feeling of give me a break…. For me if I was getting a text once a week I would just be like can you give me a break. But if it's like every two weeks or something like that, with a little tip update that would be okay, but too much I would just be annoyed, and I would probably get excited and then it would be like oh it's just the dietitian."* FG2 P4

A couple of participants thought that once or twice in-between appointments would be suitable. It was raised that this would also depend on how often you were seeing the dietitian.[1] Two participants suggested altering the frequency over the time in-between appointments, so that they received text messages more often leading up to their next appointment to prepare them and keep them on track.

[1]Appointment frequency varies between patients at TeAHN.

6 Discussion

This discussion interprets the themes produced as relating to each research objective. It begins with an overview of the key findings, followed by an interpretation of each finding in the context of the target audience and the primary care setting. Further findings are then briefly discussed, followed by a review of the strengths and limitations of the research.

6.1 Overview

This needs assessment collated patients' views regarding how their dietetic service could be supplemented, as well as the potential of text messaging in primary care, in order to gain a greater insight into how patients can be helped to adhere to dietary treatment.

Two key findings emerged from the research.

The first was that participants put emphasis on the role of social support and its impact on their ability to make behavioural changes. Support people identified were family, dietitians and people in similar health circumstances. There was the perception that furthering such relationships would contribute to participants achieving their lifestyle goals. The second key finding was that tailoring of a text messaging system was believed by participants to be paramount, to potentially assist them with behavioural change. The tailoring desired included the content, frequency, timing, and purpose of text messages.

6.2 Social support and the perceived impact on ability for behaviour change

The first objective was to explore the target audiences' perceptions of what actions between appointments could enhance face-to-face dietetic intervention in primary care. Participants described successes resulting from the inclusion of social support, and believed increased social support from a variety of sources would further help. Social support is defined as "information leading the subject to believe that he is cared for and loved, esteemed and a

member of a network and mutual obligations".[77] This study focuses on perceived support, and the level to which an individual is satisfied with support and the availability of it.[78] Different types of social support identified in the literature include emotional support (offering of concern, affection and encouragement), instrumental support (provision of goods or services), informational support (provision of advice and useful information),[79] and companionship support (presence of companions).[78, 80] Evidence from lifestyle interventions has shown an increased effectiveness when participants engage with social support.[26]

Many participants perceived that family had an important emotional support role, and that family had helped them make healthy changes. However some participants described how family could be barrier to change, particularly a lack of involvement in healthy lifestyle changes. Considering the high BMI of participants, it could be that the family members also practice similar unhealthy lifestyle behaviours. A weight loss intervention study indicated that women who reported rarely receiving support from family were less likely to lose weight, than those women who experienced frequent friend and family support (45.7% lost weight, versus 71.6% lost weight respectively).[81] This suggests that family could be incorporated into adjunct interventions to help support patients make changes. Although the nature of dietetic consultation is predominantly individual (TeAHN do encourage patients to invite family to appointments), emphasis should be made in interventions to facilitate family changes, help individuals evoke family support, and manage those family relationships and dynamics that are not supportive of healthy eating. This is particularly of importance for Māori and Pacific populations as these cultures focus on and celebrate family centeredness.[82, 83] To be most effective interventions should be developed that reflect cultural beliefs and practices. These values are recognised in NZ health philosophy and strategy,[84-86] however the current study has indicated that further efforts to incorporate family in the dietetic setting could be valuable.

Since most of health behaviour change takes place in the patient's frequented environments, adjunct interventions should consider taking advantage of situations in which there are social supports. Additionally this family social support may be the most constant stable support long term. The results of this study suggest that further developments of adjunct lifestyle interventions in this setting should have an emphasis on family involvement and encouraging support from family members. In terms of implementation of such an intervention, such as family inclusive appointments, group nutrition and exercise sessions, funding and input of the PHOs, would be required.

For some participants in this study there was a strong desire for emotional social support from people in similar health circumstance. Similar results were found in a focus group study in America for women who had completed a weight loss program. These women said that accountability to themselves wasn't so important but having support from someone who was going through the same experience was meaningful for weight loss and maintenance.[87] Participants in the current study who had participated in community group fitness sessions had enjoyed them and found the group dynamic helpful to their continued motivation. Introducing new peer support may be helpful when there are no other social supports around that individual. Additionally providing support to others is believed to be beneficial for the person providing support. This is called the helper therapy principle, and can lead to improved health outcomes.[80] Adjunct interventions could include focusing on patients developing new relationships, or identifying existing friendships that could be utilised. Providers again should be PHOs, however there is the potential for the provision of such services by non-government health organisations, for example specialist groups such as 'Diabetes New Zealand'.

There was a desire for increased patient dietitian contact. Participants described that they believed that the dietitians could help them by increasing the contact frequency and more

regularly providing emotional and informational support. Suggestions from these participants were that contacts may be by email, telephone or text message. Within the primary care setting increasing contact with patients could require an increased time input from the dietitian for each patient depending on the medium of contact, decreasing the number of patients dietitians could consult with. Tailored text messaging and email have the potential of being automated, whereas phone calls do not. Although tailoring and automation are not mutually exclusive concepts, depending of the complexity of the technology being used for automation, there will be trade-offs between the two. The results of this study suggest that lack of ability to tailor interventions would be likely to reduce their potential impact.

6.3 Text messaging is an acceptable idea however it needs to be personalised.

The second research objective was to investigate the target audiences' perceptions of receiving text messages as an adjunct to dietetic counselling, to support patients' health related goals. The response to the potential of text messaging between appointments was positive from nearly all participants. Participants felt that the benefits of text messaging would be that they could be motivating, encouraging and serve as a form of support. Less frequently mentioned was the fact that texts could act as a reminder, a form of diary, and increase their accountability to their dietitian for making lifestyle changes.

The design of the text messaging service was inherent to how acceptable text messaging in this setting would be. All participants described a preference for the personalisation of text messaging. This finding has been made in previous text messaging intervention research.[35, 54] A noticeable difference between previous research and this study is that this research was done with participants who are seeing a dietitian. Although these participants receive individualised counselling during their dietitian consultations, it would not be acceptable to the target audience of this study to receive text messages that had not been individually tailored to them.

This study revealed what desirable content of a text messaging system could be. These were for texts to provide motivation, reminders of ideas discussed with their dietitian, and new information. These all require tailoring to an individual's experiences. This research has demonstrated a text messaging system provided it was personalised would be acceptable in this setting. Future research needs to investigate the logistics of implementation regarding the personalisation of text messaging, including the trade-off between utilising dietitians' time and funding availability, and the benefits of a text messaging system.

6.4 Further findings

A lack of self-commitment and self-control were identified by many participants as reasons they failed to make lifestyle changes. When asked what the dietitian could do to support them, a desire for increased contact for motivational reasons was described. Additionally participants wanted text message content to be motivationally related. Initial motivation has been associated with predicting weight loss in adults.[88-90] However sustaining motivation for behaviour change and weight loss in an obesogenic environment [91] may be difficult for people. Motivational interviewing is one technique dietitians use to increase motivation in patients. Methods for increasing or sustaining motivation over time, and whether these can be incorporated into text messaging communication would need to be investigated. Additionally consideration needs to be taken that the source and type of motivation for persevering with behaviour change could change over the course of treatment. Comparing the male participants who had no struggle with self-motivation, to the women who found this hard, highlights a difference in the dietetic interventions that should be applied to each gender.

The Social Cognitive Theory (or elements of this theory) has been the most commonly used philosophy underpinning the design of text messaging interventions.[8, 41, 54] The focus group results are consistent with using some elements of this theoretical construct. Perceptions

of participants were that they wanted an increase in social support, and wanted text messages related to encouragement. Both of these are factors that increase self-efficacy, an important aspect to the social cognitive theory.[53]

6.5 Limitations and considerations

The TeAHN service aims to access hard to reach populations, including those who access services less frequently. TeAHN experiences high DNA rates, so this study also experienced high DNA rates. The patients that attended focus groups may have been more highly motivated. This response bias means that those in the hard to reach population may have not been represented in the research, and thus the research findings are less applicable to the hard to reach population. This also led to the study having a small sample size, resulting in the bias of the findings being increased. There were a higher number of women than men, meaning findings represent womens' perspectives more so than mens'. However distinct differences in the opinions of men and women were demonstrated. As the time frame of the project was limited, more focus groups were not held to reach complete data saturation.

When considering the transferability of these findings to other settings, it is of note to consider that the results are likely influenced by the level of satisfaction participants feel with the TeAHN dietitians. What participants feel would further support them is linked to what they have been provided with by three dietitians and TeAHN. Other providers service their patients differently, and thus those patients may feel differently.

This study measured participant perspectives, and thus consideration must be given that these results reflect opinions and not facts. What participants perceive to be helpful may differ from what interventions can be effective. For example participants in this study believed learning new information about food and health was a main reason for them making changes. However it has been shown that factual information does not lead to behaviour change.[92]

6.6 Strengths

This study used purposive sampling from within a PHO that serves the needs of Māori, Pacific and people living in areas of high deprivation, making the findings of the research transferable to similar PHOs. The main data collection tool, the focus group questioning schedule, used in this study was reviewed by experienced community dietitians and pilot tested rigorously. There was rigorous documentation of the project design and data collection process. Analysis of the data was done following recommendations,[71, 76] to minimise the risk of prejudice of the author interfering with the interpretation. The primary researcher was an independent researcher with no previous relationship with TeAHN, which reduces bias. The use of quotes from a variety of participants and focus groups was used as evidence to show that the themes presented were derived from the data. The high proportion of Māori in this sample is important, as Māori experience worse health outcomes than other ethnicities.

6.7 Conclusion

This study is the first to the authors' knowledge to examine how dietetic intervention in primary care can be supplemented in NZ. While dietitian counselling is an intensive intervention, this study indicates that patients perceive that increasing the support around them will help, encouraging clear direction for future targeted interventions. Improving access to PHO services is important, however making sure the interventions in these settings are suited to the needs of those who access them is paramount. This study is also the first to investigate perceptions of using text messaging within the primary care setting in NZ, finding that the idea is acceptable to patients. Tailoring of this type of intervention is a desired feature, as well as the text content relating to goal reminders and motivation.

7 Application to Practice

This study was done in a PHO, making the findings applicable to similar services in NZ. Understanding how patients believe they can be further helped is useful feedback for community dietitians to use to improve services and patient outcomes. The findings from this study provide some opportunities to improve dietitian work with patients in the following ways:

- This research demonstrates that patients feel a need for family and peer social support. For dietitians counselling individuals, this brings attention to the need to consider factors surrounding the individual, particularly the social environment.
- Dietitians can note from this research the following key point regarding the dietitian–patient relationship. Although social support may not be typically recognised as a function of the dietitian service, this research has demonstrated the potential impact a community dietitian can have as an emotional support person, alongside providing information and services.
- The results of this study raise some differences between the genders regarding making behaviour change. Half of the men in this study felt that it was easy to make changes. They didn't struggle with maintaining a commitment to their goals. This highlights that there are some between gender differences, and thus some males and females need different intervention approaches.
- The results demonstrate that patients value the information that they receive from the dietitian. Even though simply receiving factual information has not been shown to prompt behaviour change, participants identified that these learnings are of great value to them.

For the development of services and interventions directed at Māori, Pacific and people living in areas of high deprivation, this research provides needs analysis and direction for future adjunct intervention.

The results highlighted that additional interventions in this setting should involve social support for these patients.

Additionally this study shows that text messaging as an adjunct intervention is an acceptable opportunity for intervention in this setting. Text messaging may hold potential as an intervention to supplement adherence to dietary goals. What is advantageous about text messaging is that it is an intervention that may not burden dietitians as much as other adjunct interventions due to the potential of text message automation. This is of importance as dietitians in primary care already have high demands on their time, especially with the increasing number of long-term conditions needing dietary management.[22] Additionally there is the potential that text messaging in this setting could decrease the frequency of the need for face-to-face engagement, if patients continue to achieve their goals, they may need less appointments. Future development and research will be needed to test this hypothesis, however this study has provided evidence that text messaging, as a medium for communication to foster behaviour change is acceptable. The development of innovative interventions such as tailored computer assisted text messaging requires funding in order to happen, which would need to be provided by the PHO. With further need arising for effective weight management treatment, text messaging has a promising future for application in the dietetic primary care setting.

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Appendices

Appendix A: Ethical approval application and confirmation

Reporting Sheet for use ONLY for proposals considered at departmental level

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Form Updated: May 2015

UNIVERSITY OF OTAGO HUMAN ETHICS COMMITTEE
APPLICATION FORM: CATEGORY B

(Departmental Approval)

Please ensure you are using the latest application form available from: http://www.otago.ac.nz/council/committees/committees/HumanEthicsCommittees.html

1. **University of Otago staff member responsible for project:**

   MILNE Jan Title (Mrs) - Primary Supervisor

   PARNELL Winsome (Dr) – Co-supervisor

2. **Department/School:** Department of Human Nutrition

3. **Contact details of staff member responsible** *(always include your email address)*:

   JAN MILNE jan.m@teahn.org.nz Days of work: Monday, Tuesday and Friday

   04 576 8600 (w) | 04 566 5369 (f) | L4, 330 High Street, P O BOX 44125, LOWER HUTT |

   Alternative contact on Wednesday and Thursday:

   04 586 3890 or 021 971 259 or janmilne1@gmail.com

4. **Title of project:** The development of a text messaging support in a primary healthcare setting.

5. **Indicate type of project and names of other investigators and students**:

Staff Research	✓	**Names**	Winsome Parnell
Student Research	✓	**Names**	Kendall McCowatt

Level of Study (e.g. PhD, Masters, Hons)		Masters
External Research/ Collaboration	✓ **Names**	Jan Milne
Institute/Company		Te Awakairangi Health Network

6. When will recruitment and data collection commence?

13 July 2015

When will data collection be completed?

30 October 2015

7. Brief description <u>in lay terms</u> of the aim of the project, and outline of the research questions that will be answered (approx. 200 words)**:**

Interventions to reduce weight and dietary related outcomes have varying success long term. However, additional social support can improve dietary outcomes and confidence to make and maintain changes. Using mobile phones as a medium for health communication has a number of advantages, those being, the high penetration of mobile phone ownership, the low cost of text messaging, and the ability to prompt thought and action within a patient's environment (Whittaker, Merry et al. 2012). As mobile technology is a widely used medium for communication, it has the potential to provide effective, accessible and acceptable support for dietary changes.

The aim of this proposed study is to develop a text messaging support system that will improve patient outcomes in the primary healthcare setting. This study forms part one of a two-part study that will test the efficacy of the text messages in improving dietary outcomes and patient satisfaction. This will inform dietitians working in primary care of the value of text messaging as an adjunct to face-to-face interventions.

* *Whittaker, R., S. Merry, E. Dorey and R. Maddison (2012). "A development and evaluation process for mHealth interventions: examples from New Zealand." <u>J Health Commun</u> **17 Suppl 1**: 11-21.*

Research objectives:

- To identify what members of the target audience perceive as key concepts, effective language, and effective timing for a text message support and reminder system in adjunct to the Te Awakairangi Dietetic Service. *(Part one of study)*
- To develop a pool of appropriate encouragement and reminder text messages that the target audience perceives will improve their motivation, confidence to make dietary changes, resolution of dietary problems, attendance at appointments, overall satisfaction with the dietetic service and weight outcomes. *(Part one of study)*
- To evaluate the effectiveness of a text message support system in adjunct to the Te Awakairangi Dietetic Service on patient motivation, confidence to make dietary changes, resolution of dietary problems, attendance at appointments, overall satisfaction with the dietetic service and weight outcomes. *(Part two of study)*

8. Brief description of the method. Include a description of who the participants are, how the participants will be recruited, and what they will be asked to do:-

Phase One:

Qualitative investigation will be undertaken through a mixed methods approach, using expert input from researchers who have investigated similar research questions, semi-structured focus groups, and a brief questionnaire after the final focus group.

Expert opinion will be obtained via email or phone contact using standardised questions to researchers of similar New Zealand projects. Questions will focus on gathering information regarding reasons for their research methodology, key findings, and underlying behaviour change theories used.

Focus group participants (n=5 in each focus group) will be recruited through random purposive sampling from the pool of patients currently accessing the Te Awakairangi Dietetic service. Participants will be 18-60y, Maori, Pacific Island or Quintile 5 (low income) as per service referral criteria.

Facilitation of six 1-hour focus groups will follow a semi-structured schedule and iterative technique. Open-ended questions will be used to obtain participant feedback on one or more of the following themes: barriers to behaviour change, perceived effective social support, mobile phone usage, what text language and key concepts would be most effective, what time of day participants would most like to receive messages, how frequently participants would most like to receive messages, cultural considerations. Data will be collected during focus

groups via field notes and audio-tape. Participants will receive a $20 grocery voucher as reimbursement for their expenses.

Feedback from the first four focus groups will inform the development of a pool of text messages to be used as an intervention to be compared with a control in phase two of the study. The last two focus groups will act to pre-test the pool of text messages with an iterative approach.

After completion of all focus groups, a brief questionnaire will be sent to all focus group participants as a final pre-test of the pool of text messages which will inform further refining prior to phase two of the study.

Phase 2:

A 4 month feasibility study would be carried out at Te Awakairangi Health Network, comparing an intervention group (n=10) receiving text messages based on phase one of the study in conjunction with face-to-face nutrition counseling vs a control group (n=10) receiving only face-to-face counseling with reminder texts one day prior to appointments. Pre-assessment and post-assessment questionnaires would be used to gather self-reported participant data on confidence to complete nutrition goals, self-efficacy, motivation, perceived expectations (pre-intervention)/ perceived value (post-intervention) of the dietetic service, attendance rates to consultations, weight outcomes and BMI outcomes. Participants would follow the same recruitment criteria as phase 1. Ethics for phase 2 will be sought after phase 1 is completed.

9. Disclose and discuss any potential problems: (For example: medical/legal problems, issues with disclosure, conflict of interest, safety of the researcher, etc)

Anonymity will be preserved by the lack of any identifiable information collected in the surveys or focus groups. The audiotapes of focus groups will be destroyed after data extraction, which will not include extraction of any personal identifying data (quotes will be coded to preserve anonymity).

Participants will be informed that they may withdraw from the study at any time. This information will be given in writing on the participant information sheets, and verbally at the start and end of each focus group.

Participants will be compensated with a $20 grocery voucher as reimbursement for their expenses.

Any expert opinion obtained will be given appropriate recognition.

Given the low risk nature and anonymous presentation of data, it was concluded that a Category B application would suffice.

***Applicant's Signature:** .....

Name (please print): ……

Date: .....

**The signatory should be the staff member detailed at Question 1.*

ACTION TAKEN

☐ Approved by HOD ☐ Approved by Departmental Ethics Committee

☐ Referred to UO Human Ethics Committee

Signature of **Head of Department*:* .....

Name of HOD (please print): ……

Date: .....

**Where the Head of Department is also the Applicant, then an appropriate senior staff member must sign on behalf of the Department or School.

Departmental approval: *I have read this application and believe it to be valid research and ethically sound. I approve the research design. The research proposed in this application is compatible with the University of Otago policies and I give my approval and consent for the application to be forwarded to the University of Otago Human Ethics Committee (to be reported to the next meeting).*

D15/214

Academic Services
Manager, Academic Committees, Mr Gary Witte

14 July 2015

Assoc. Prof. W Parnell
Department of Human Nutrition
Division of Sciences

Dear Assoc. Prof. Parnell,

I am writing to confirm for you the status of your proposal entitled "**The development of a text messaging support in a primary healthcare setting**", which was originally received on June 26, 2015. The Human Ethics Committee's reference number for this proposal is **D15/214**.

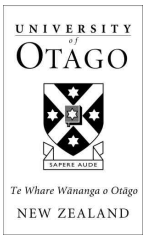
The above application was Category B and had therefore been considered within the Department or School. The outcome was subsequently reviewed by the University of Otago Human Ethics Committee. The outcome of that consideration was that the proposal was approved.

Approval is for up to three years from the date of HOD approval. If this project has not been completed within three years of this date, re-approval must be requested. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing.

Yours sincerely,

Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz

Appendix B: Information sheet for participants



INVESTIGATING PATIENT PERCEPTIONS FOR ENHANCING DIETETIC INTERVENTIONS, AND OF A TEXT MESSAGING SYSTEM, IN A DIETETIC PRIMARY HEALTHCARE SETTING

INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

This project aim is to develop a text message support system that will support face-to-face dietitian consultations currently being offered by Te Awakairangi Health Network (TeAHN). A series of 5 focus groups will be run with patients who are currently or have recently seen a TeAHN dietitian. The aim will be to identify whether patients would like to receive text messages to support lifestyle change and improve the experience of the dietitian service. This project is being undertaken as part of the requirements for Kendall McCowatt's Master of Dietetics.

What Types of Participants are being sought?

You have been identified as a potential participant for this project because you have engaged with the TeAHN dietitian service within the last three months. In order to participate you need to be over the age of 18, have a BMI >25 (your dietitian will work this out for you) and speak and understand English. The student researcher will approach you after a meeting with your dietitian or contact you by phone to explain the study and invite you to participate.

What will Participants be asked to do?

If you would like to take part in this project, you will be asked to attend one, one-hour focus group with approximately 6 other people. This will be held at the TeAHN offices at Level 4, 330 High Street, Lower Hutt. It will be run by the student researcher (Kendall McCowatt) and a TeAHN dietitian. During this focus group you will be asked questions about your opinions and thoughts on the kinds of text messages that would support patients to make lifestyle changes. You may choose not to respond to certain questions in the focus group. You will be given a $20 grocery voucher, for the associated expenses. Please be aware that you may decide not to take part in the project at any time without any disadvantage to yourself.

What Data or Information will be collected and what use will be made of it?

The information in your referral form to the TeAHN dietitian will help to decide whether you can participate. This information is stored in the secure MedTech computer system.

The focus groups will be audio taped in order to accurately capture quotes. Written notes will also be taken by one of the researchers. All comments will be anonymous.

This project involves an open-questioning technique. The general line of questioning includes your thoughts on changing lifestyle habits, social support, text language, best time of day to receive messages, amount of text messages and cultural considerations. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that you feel hesitant or uncomfortable you may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.
At the end of the focus group, a summary of the ideas will be read out. You will have the opportunity to correct or withdraw comments. The information collected will be used by the student researcher to develop text messages that will support patients to make changes. All quotes, comments and questionnaire data collected from you will be kept anonymous. No identifiable information will be used or reported in any publications arising from this research.

Your personal information will be stored separately to focus group comments. Focus group data will be stored in a locked cabinet at TeAHN for five years, after which they will be destroyed securely. Only the student researcher, supervisors and TeAHN dietitians will have access to the data arising from this research.

The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand). The results may be presented to the staff and students at the University of Otago and the Te Awakairangi Health Network. Every attempt will be made to preserve your anonymity.

Can Participants change their mind and withdraw from the project?

You may withdraw from participation in the project at any time up until after you have provided feedback on the text message pool via a questionnaire. If you decide not to take part in this research at any time, this will have no disadvantage to yourself and will have no influence whatsoever on the care you receive from the TeAHN dietetic service.

What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact either:-

Kendall McCowatt and *Jan Milne*

Department of Human Nutrition

University of Otago

Te Awakairangi Health Network

Telephone Number: 022 1259838

Telephone Number:- 04 576 8600

Email Address: mccke708@student.otago.ac.nz

EmailAddress: jan.m@teahn.org.nz

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

INVESTIGATING PATIENT PERCEPTIONS FOR ENHANCING DIETETIC INTERVENTIONS, AND OF A TEXT MESSAGING SYSTEM, IN A DIETETIC PRIMARY HEALTHCARE SETTING

CONSENT FORM FOR PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without any disadvantage;

3. Personal identifying information such as dietetic referral form will be stored separately from other data in the secure Medtech computer system. Audio-tapes and questionnaires will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years;

4. This project involves an open-questioning technique. The general line of questioning includes my thoughts on changing lifestyle habits, social support, text language, best time of day to receive messages, amount of text messages and cultural considerations. The precise nature of the questions which will be asked have not been determined in advance, but will depend on the way in which the interview develops and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind;

5. There are no anticipated risks to my personal safety or health in taking part in this research;

6. I will receive a $20 grocery voucher at end of the project;

7. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity.

I agree to take part in this project.

....
(Signature of participant) (Date)

.....
(Printed Name)

Appendix C: Focus Group Questioning Schedule

Focus Group Questioning Schedule

1. Let's start with sharing our names, so we all feel more comfortable, and you can share something brief about yourself, perhaps sharing what is your favourite meal to cook at home? (Opening question)

Section 1: Contextual information

2. I would like to hear more about everyone's experiences seeing a dietitian at Te Awakairangi? I am interested in finding out are about where and how often you have seen the dietitian and the types of things you discussed with your dietitian.

Introduction to Patient Environment Graphic

So today we want to see what could be done to assist you, in addition to the dietitian counselling you have received. So we want to explore the experiences of patients who see dietitians here, and we would like to know how patients feel about what could help them in the time in between appointments. So if I can direct your attention to the piece of paper on the desk, this is here just to serve a reminder that we are seeking information about the times in-between appointments, we aren't seeking feedback on the individual dietitians.

Section 2: Objective 1: Explore the target audiences' perceptions of what could enhance face-to-face dietetic interventions between appointments in primary health.

3. For many patients who see the dietitian, they develop a goal, which is something you are going to try and change, and is discussed at the following appointment. Can you tell me about what things helped you achieve the goals you have set with your dietitian?
   Prompts: meal plans, recipes, being weighed, having a goal,

4. What makes it hard for you to make changes?
   Purpose: explore the barriers to adherence and to participants achieving their goals

5. If there was anything you could get, what do you think could help you make changes and achieve your goals in between consultations?
   Prompts: food cost, involving family, involving friends, learn to cook, more dietitian appointments, physical activity coach, nothing more,
   Purpose: explore what participants perceive would help them

6. Thinking about those times in between seeing your dietitian, what could the dietitians do to support you?
   Prompts: dietitian to contact you, group sessions, phone calls, weigh ins,
   Purpose: explore what participants perceive dietitian could do to help

Section 3: Objective 2: To investigate the target audiences perceptions for receiving text messages as an adjunct to dietetic counselling, to support patients' health related goals.

Introduction to a text messaging

Our research is looking at what further the dietitians can do to support the patients here to help achieve their goals in between consultation, one idea to try and do this would be using mobile phones and text messaging to connect with patients.

7. Can you tell me about how and when your use mobile phone?
   Prompts: How do you use texting? Phone ownership? Changed numbers?
   Purpose: investigate participants' mobile phone and texting use

8. Have you been texted regarding your healthcare before, was it useful and why?
   Prompts: appointment reminders? blood test results?
   Purpose: investigate participants past experiences with text messaging and healthcare

9. Thinking about the times in between appointments, what do you think about the idea of a text messaging service between you and your dietitian?
   Prompts: would it be useful to be able to text your dietitian? Would it be useful having your dietitian text you?
   Purpose: perceived acceptability of text messaging system to participants

Introduction to text message images

Here are some pictures of text messages just to give you an idea and get you thinking. This isn't exactly what the text messages would say, we just wanting to get the group thinking about what the messages could say and what you would like and think would be helpful.

10. What types of things would you want in a text message service to help you achieve the goals you set with your dietitian?
    Prompts: Do you think that:
    - *Being reminded of your goals via text message be helpful?*
    - *Getting tips on how to practically achieve your goals would be helpful?*
    - *Receiving motivational message would be helpful?*
    - *New nutrition information would be helpful?*
    - *Being able to text your dietitian?*

    Purpose: investigate what style and content of a text message participants perceive to find helpful

11. What do you think would be the good things about a text messaging service in between your appointments that you have with your dietitian?
    Purpose: to find out participants perceived benefits of text messaging system

12. What is it about a text messaging service that you wouldn't like?
    Prompts: confidentiality concerns, irritating, not helpful
    Purpose: to find out participants potential barriers of text messaging system

13. Near the beginning of the group today, you all discussed some things that were helpful, and things that were difficult for you in achieving your goals. What do you think about text messages being able to address any of those issues you have discussed?
    Purpose: to find out whether participants perceive text messaging will help them achieve their goals

14. Summary given by facilitator. Is this an adequate summary?
    (Ending Question)

Appendix D: Focus Group Debrief Document

Focus Group Debrief Document

What are the main themes that emerged in this focus group?

Did any information contradict what has previously been learned in focus groups?

What did participants say that was unclear or confusing to you?

What was observed that would not be evident from reading a transcription of the discussion (group dynamic, individual behaviours)?

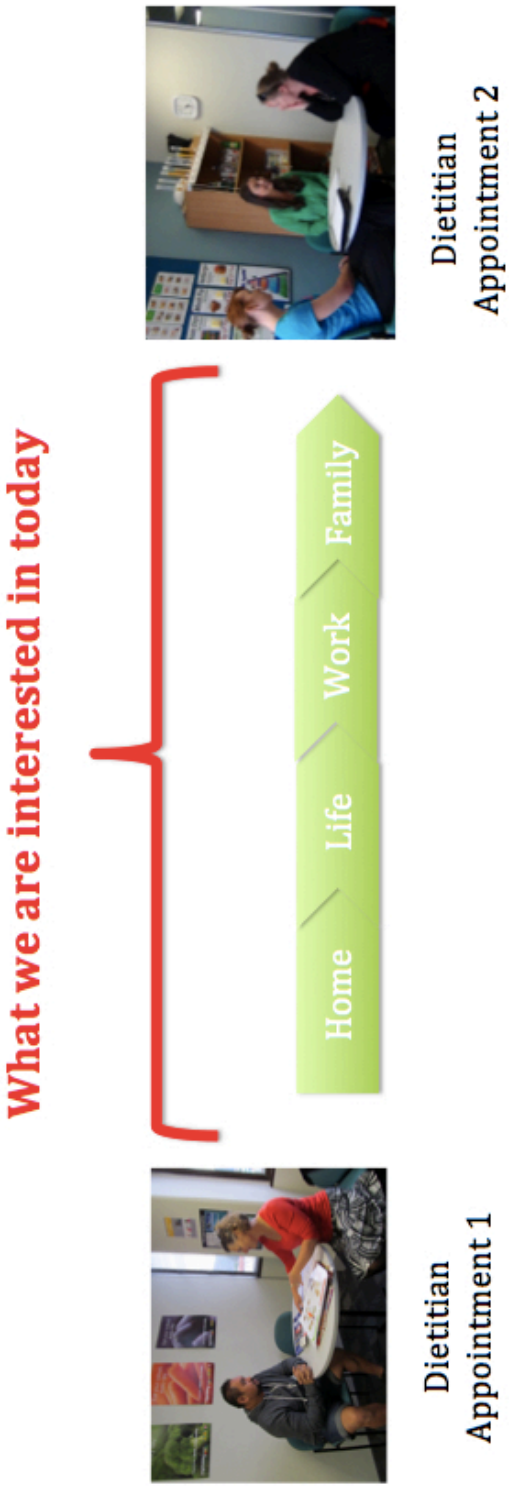
What problems were encountered (logistical, behaviours of individuals, questions that were confusing)?

What issues will you follow up?

Suggestions for the moderator

Suggestions for the note taker

Appendix E: Patient Environment Visual



Appendix F: Text message examples


If you struggle with portion sizes, try using smaller dinner plates.


Share your goals with your friends and family. They can help you keep on track.

Appendix G: Focus Group note taker template

FOCUS GROUP NOTE TAKING

Date of Focus Group:

Number of Participants:

Q 1. Let's start with sharing our names, so we all feel more comfortable, and you can share something brief about yourself, perhaps sharing what is your favourite food? (Opening question)

Q2. I would like to hear more about everyone's experiences seeing a dietitian at Te Awakairangi?

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator	

Q3. For many patients who see the dietitian, they develop a goal, which is something you are going to try and change, and is discussed at the following appointment. Can you tell me what helped you make those changes?

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 4. What makes it hard for you to make changes?
Purpose: explore the barriers to adherence and participants achieving their goals

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 5. If there was anything you could get, what do you think could help you make changes and achieve your goals in between consultations?
Purpose: explore what participants perceive would help them

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 6. Thinking about those times in between seeing your dietitian, what could the dietitians do to support you?
Purpose: explore what participants perceive dietitian could do to help

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q7. So can you tell me about how and when your use mobile phone?
Purpose: investigate participant's mobile phone and texting use

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 8. Have you been texted regarding your healthcare before, was it useful and why?
Purpose: investigate target audiences past experiences with text messaging and healthcare

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 9. Thinking about the times in between appointments, what do you think about the idea of a text messaging service between you and your dietitian?
Purpose: perceived acceptability of text messaging system

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 10. What types of things would you want in a text message system to help you achieve the goals you set with your dietitian?
Purpose: to investigate what style of a text messages the target audience perceives to find helpful

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 11. What do you think would be the good things about a text messaging service in between your appointments that you have with your dietitian?
Purpose: to find out perceived benefits of text messaging system

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 12. What is it about a text messaging service that you wouldn't like?
Purpose: to find out potential barriers of text messaging system

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Q 13. Near the beginning of the group today, you all discussed some things that were helpful, and things that were difficult for you in achieving your goals. What do you think about text messages being able to address any of those issues you have discussed?
Purpose: to find out whether target audience perceive text messaging will help them achieve their goals

Key Idea	Quotes and Body Language. Participant #

Notes for Facilitator

Summary given by note taker
Q.14 Is this an adequate summary? (Ending Question)